12-4-2009

Ex. 277-US-440

Mike Gagner
R2 Resource Consultants

WM-8

"Air in the Air"

ALL-WEATHER

LEVEL BOOK

No. 310 F

4/14/04

CONTENTS

PAGE	REFERENCE	DATE

"Rite in the Rain"®
ALL-WEATHER WRITING PAPER

ALL-WEATHER
LEVEL BOOK

Name Mike Gagner
R2 Resource Consultants

Address 15250 NE 95th
Redmond WA 98052

Phone 425/556-1283

Project 1418.01 PHABSIM Data

This book is printed on "Rite in the Rain" All-Weather Writing Paper - A unique paper created to shed water and enhance the written image. It is widely used throughout the world for recording critical field data in all kinds of weather. For best results, use a pencil or an all-weather pen.

Specifications for this book:

Page Pattern		Cover Options	
Left Page	Right Page	Polydura Cover	Fabrikoid Cover
Columnar	Columnar	Item No. 310	Item No. 310F

WM-8 04/13/04

Crew: M. Gagner
A. Weybright

	In	Out
Time	9:45	12:05
5.6	0.85	0.85

Equipment: Nikon Level SN:
Marsh McBirney Model 2000
SN: 2005068

Direction: Turn right onto FS Rd 49 after crossing Klamath Marsh on Silver Lk Hwy. Follow Rd 49 For ~ 7 1/4 mile & look for rd 4983 on right. Turn right onto Rd 4983 and follow for ~ 3/4 mile. At first intersection turn left onto old road leading to abandoned stream crossing. Transects are located u/s of old crossing site.

WM-8 Photo Log 04/13/04

(Roll #5)

Photo #		Description		
#7		looking d/s at pool unit		
#6		" u/s at " "		
#5		" Rt → Lt	TR-1	Pool
#4		"	TR-2	
#3		"	TR-3	
#2		" Rt → Lt	TR-1	glide
#1	Redo 7	"	TR-2	
#25		"	TR-3	
24		looking d/s from at glide unit		
23		" Lt → Rt across TR-2		
22		looking u/s at glide unit		

04/13/04

WM-8 Sample Unit Selection

Random #s: 1, 2

Pool 2100 x .1 = 210 unit # 1

Glide 2100 x .2 = 420 unit # 3

WM-8 Transect Selection

Random #s: 2, 4, 8

Pool Unit 60' long

60 x .2 = 12'
60 x .4 = 24'
60 x .8 = 48'
> measured u/s from start of unit

Glide/Run Unit 265' long

265 x .2 = 53'
265 x .4 = 106'
265 x .8 = 212'
> measured u/s from start of unit

Pool/glide WM-8 Unit Level Loop & WSE 04/15/04

STA	BS	HI	FS	Elevn
BM-1				100.00 (pool)
	5.48	105.48		
TR-1 (pool)			6.72	98.76
TR-2 (pool)			6.54	98.94
TR-3 (pool)			6.64	98.84
TR-1 (glide)			6.87	98.61
BM-2 (glide)			4.99	100.49
TR-2 glide			5.76	99.72
TR-3 glide			5.72	99.76
TR-3 glide (TP)	6.34	106.10		99.76
		~~93.12~~		
TR-2 glide			6.38	99.72
BM-2			5.61	100.49
TR-1 glide			7.50	98.60

WM-8

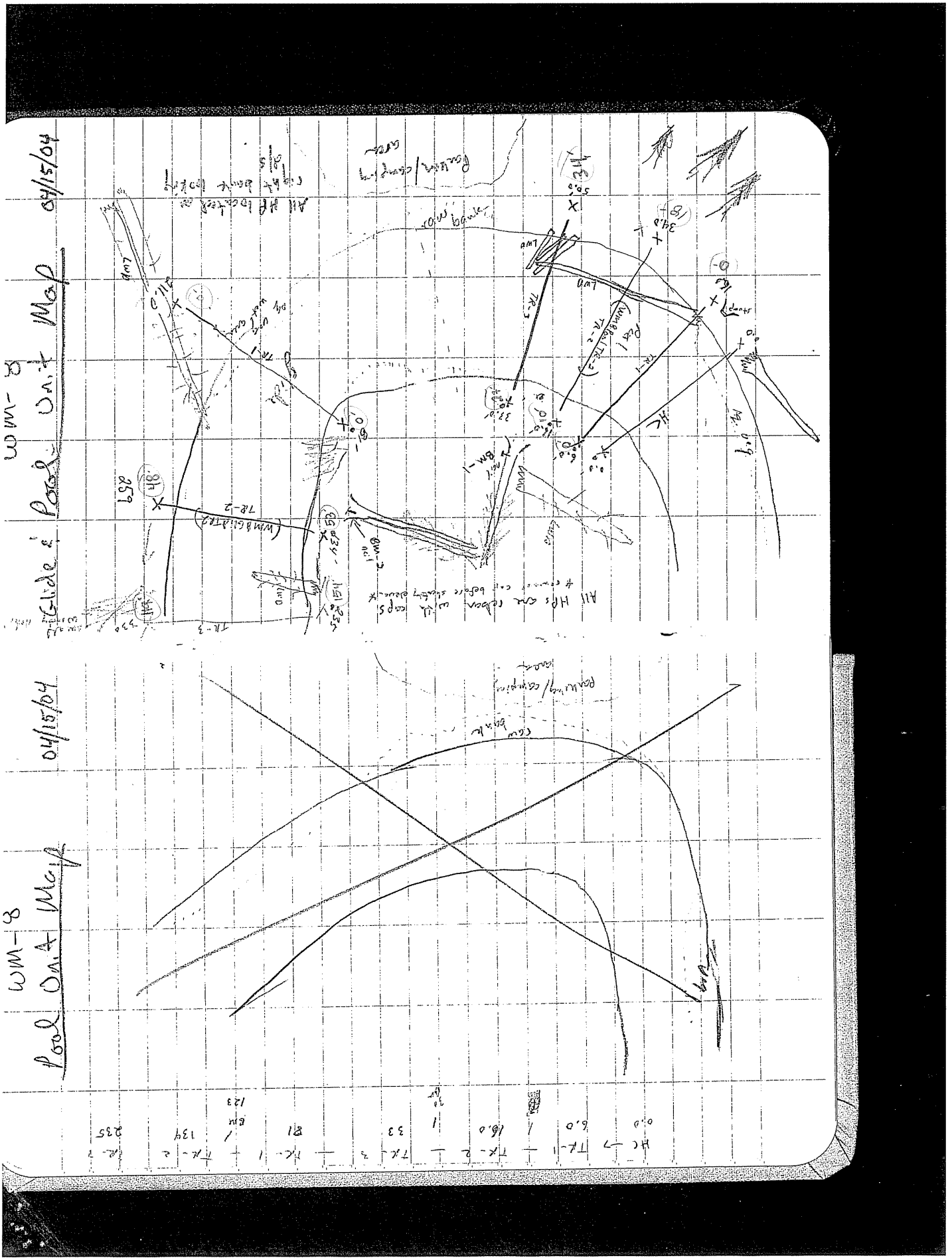
Glide/Pool Level Loop ~~Duvt~~ Map Cont. 4/15/04

STA	BS	HI	FS	Elevn
		106.10		
TR-3 (pool)			7.26	98.84
TR-2 pool			7.16	98.94
TR-1 (pool)			7.34	98.76
BM-1			6.11	99.99 ok

WM-8

Pool/Glide Unit WSE 04/15/04

STA	BS	HI	FS	Elevn
(middle of channel)		106.10		
TR-3 ~~pool~~ glide			9.61	96.49
TR-2 glide			9.63	96.47
TR-1 glide			9.64	96.46
TR-3 pool			9.67	96.43
TR-2 pool			9.67	96.43
TR-1 pool			9.68	96.42
BM-1			6.11	99.99
HC			9.69	96.41


WM-8
Pool On, At Map
04/15/04
WM-8
Pool On, At Map
04/15/04

WM-8 Discharge 04/15/04

STA	Depth	Vel	Notes
13.0	0.0		edge
14.0	0.60	0.0	veg / velocity break
16.5	0.70	0.0	"
19.0	1.5	0.0	" "
21.5	1.90	-0.05	back eddy / veg
24.0	1.9	-0.05	" "
26.5	1.9	.26	
~~29~~ 29.0	2.3	0.66	
31.0	2.3	0.93	
33.0	2.9	1.54 / 1.14	
35.0	2.~~X~~50	1.36 / .63	
37.0	2.0	1.43	
39.0	2.40	1.16	
41.0	2.40	1.39	
43.0	2.40	1.29	
45.0	2.30	0.98	
47.0	2.20	0.91	
49.5	1.90	0.64	
52.0	1.90	0.84	
54.5	1.60	0.95	
57.0	1.30	.29	
58.0	0.90	-.04	small back eddy
59.0	.40	-.07	" "
59.5	0.0		edge

WM-8

"Make in the Shade"

ALL-WEATHER

LEVEL BOOK

No. 310 F

6/26/64

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WMB 6/26/04

	IN	OUT
TIME	10:15am	5:55pm
S.G.	0.4	0.4

Crew: C. Yoder, A. Weybright

Equipment: Swoffer #4099 Prop 1A

nice sunny day, no clouds, light wind

PHOTO LOG: CY ROLL #4

Type	TR	RWP	LWP	RWE	LWE
Pool	1	1.0	84.2	26.6	69.5
Pool	2	1.0	87.7	31.6	73.5
Pool	3	1.0	89.4	36.8	77.7
Glide	1	1.0	74.8	12.9	53.3
Glide	2	1.0	65.2	6.3	~~48.5~~ 48.4
Glide	3	1.0	75.2	10.4	54.0
HC		1.0	78.4	26.1	70.2

→ HC working pin installed after surveying

Note: HC tied off to log ~20' downstream of Pool TR1 WP w/ flagging

Photo Log: CY ROLL #4

(24) WMB Hydraulic Control Looking LB to RB
(23) WMB Hydraulic Control Looking RB to LB
(22) WMB Looking upstream below Pool TR1 with HC tape up
(21) WMB Pool TR1 RB to LB
(20) WMB Pool TR1 LB to RB
(19) WMB Pool TR2 RB to LB
(18) WMB Pool TR2 LB to RB
(17) WMB Pool TR3 RB to LB
(16) WMB Pool TR3 LB to RB
(15) WMB Pool above TR3 looking downstream with TR3 tape up
(14) WMB ~~Pool~~ Glide TR1 RB to LB
(13) WMB Glide TR1 looking upstream
(12) WMB Glide TR1 LB to RB
(11) WMB Glide TR2 RB to LB
(10) WMB Glide TR2 LB to RB
(9) WMB Glide TR3 RB to LB
(8) WMB Glide TR3 LB to RB
(7) WMB Glide TR3 looking upstream
(6) WMB Glide TR3 looking downstream

POOL/GLIDE

LEVEL LOOP SURVEY 6/26/04

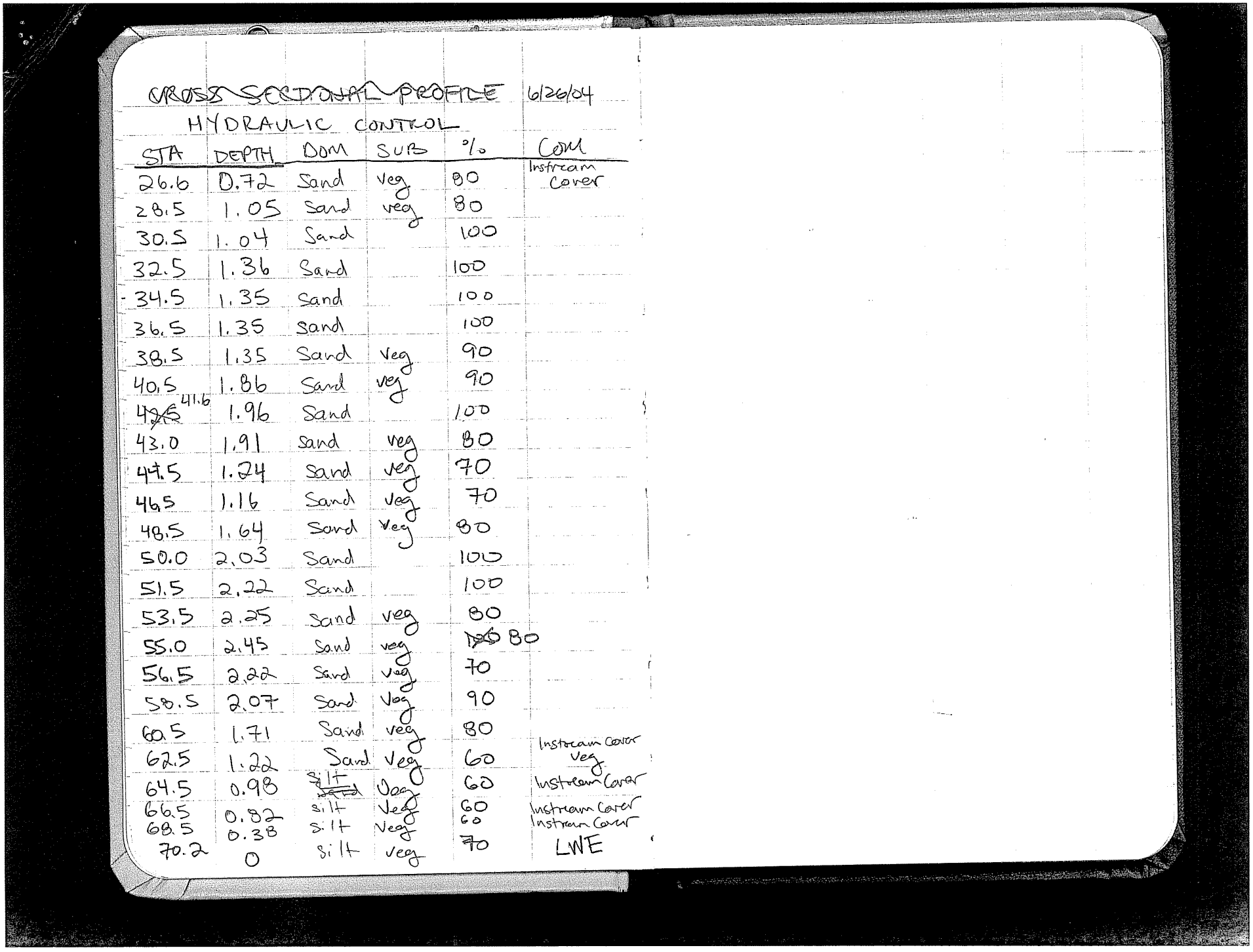
STA	BS	HI	FS	ELV	ROD
BM1	6.03	106.03		100.00	(POOL)
TR1 (P)			7.26	98.77	
TR2 (P)			7.09	98.94	
TR3 (P)			7.19	98.84	
TR1 (G)			7.42	98.61	
TR2 (G)			6.31 ~~6.13~~	~~99.9~~ 99.72	
TR3 (G)			6.27	99.76	
BM2 (G)			5.53	100.50	(GLIDE)
(TP)				100.50	
BM2 (G)	5.62	106.12			
TR3 (G)			6.36	99.76	

upstream and downstream of what?

P-POOL
G-GLIDE

6/26/04

STA	BS	HI	FS	ELV	ROD
TR2 (G)		106.12	6.40	99.72	
TR1 (G)			7.51	98.61	
TR3 (P)			7.28	98.84	
TR2 (P)			7.17	98.95	
TR1 (P)			7.35	98.77	
BM1 (P)			6.12	100.00	
HC WSE - Left			10.10	96.02	
HC WSE - Rt.			10.10	96.02	
WSE downstream ~60'			10.13	95.99	
WSE downstream			12.09	96.01	1.98
WSE upstream 60'			9.97	96.15	
WSE upstream			12.65	96.17	2.70



CROSS SECTIONAL PROFILE 6/26/04

HYDRAULIC CONTROL

STA	DEPTH	DOM	SUB	%	COM
26.6	0.72	Sand	veg	80	Instream Cover
28.5	1.05	Sand	veg	80	
30.5	1.04	Sand		100	
32.5	1.36	Sand		100	
34.5	1.35	Sand		100	
36.5	1.35	Sand		100	
38.5	1.35	Sand	veg	90	
40.5	1.86	Sand	veg	90	
~~42.5~~ 41.6	1.96	Sand		100	
43.0	1.91	Sand	veg	80	
44.5	1.24	Sand	veg	70	
46.5	1.16	Sand	veg	70	
48.5	1.64	Sand	veg	80	
50.0	2.03	Sand		100	
51.5	2.22	Sand		100	
53.5	2.25	Sand	veg	80	
55.0	2.45	Sand	veg	~~100~~ 80	
56.5	2.22	Sand	veg	70	
58.5	2.07	Sand	veg	90	
60.5	1.71	Sand	veg	80	
62.5	1.22	Sand	veg	60	Instream Cover Veg.
64.5	0.98	~~Sand~~ Silt	veg	60	Instream Cover
66.5	0.82	Silt	veg	60	Instream Cover
68.5	0.38	Silt	veg	60	Instream Cover
70.2	0	Silt	veg	70	LWE

HYDRAULIC CONTROL CROSS SECTIONAL PROFILE

6/26/04

STA	BS	HI	FS	ELV	ROD	POM	SUB	%	COMMENTS
-9.0		106.12	6.74	99.38		veg	Sand	90	RWP-10
1.0			7.59	98.53		veg	Sand	90	RWP
12.0	out of order		9.20	96.92		veg	Sand	90	
3.5			7.88	98.24		veg	Sand	90	
6.8			8.52	97.60		veg	Sand	90	
8.7			8.44	97.68		veg	Sand	90	
20.0			9.17	96.95		veg	Sand	90	
25.6			9.68	96.44		veg	Sand	90	call silt/veg etc.
26.1			10.09						RWE
70.2			10.10	96.02		silt	veg	70	LWE
72.4			8.71	97.41		silt	veg	80	
74.0			7.50	98.62		silt	veg	80	
75.7			6.91	99.21		Sand	veg	80	
78.4			5.88	100.30		veg	Sand	70	LWP
90.4 *			5.35	100.77		veg	Sand	70	LWP + 12' *EST.

POOL TR1

CROSS SECTIONAL PROFILE

6/26/04

STA	BS	HI	FS	ELV	ROD	POM	SUB	%	COMMENTS
-11.0		106.12	6.84	99.28		Veg	~~Sand~~	80	RWP - 12'
1.0			7.80	98.32		Veg	Sand	80	RWP
~~2.8~~			8.10	98.02		Veg	Sand	80	
10.0			8.63	97.49		Veg	Sand	80	
13.0			8.93	97.19		Veg	~~Sand~~	~~80~~ 100	
18.0			8.84	97.28		Veg	~~Sand~~	~~80~~ 100	
21.5			9.09	97.03		Veg	~~Sand~~	~~80~~ 100	
24.2			9.37	96.75		Veg		100	
26.5			10.02	96.1		Veg		100	bank
26.6			10.09	96.03		Veg	~~sand~~	100	RWE edge
			10.11	96.01					RWSE elevation
			10.10	96.02					LWSE
69.5			10.08	96.04		Silt	Veg	90	LWE edge
70.5			9.83	96.29		Silt	Veg	90	
72.5			8.95	97.17		Silt	Veg	90	
73.9			7.99	98.13		Sand	Veg	70	
76.0									LWD
75.1			6.51	99.61		Sand	Veg	60	
77.5			5.57	100.55		Sand	Veg	60	
80.5			5.42	100.7		Veg	Sand	60	
84.2			5.32	100.8		Veg	Sand	80	LWP
96.2			5.04	101.08		Sand	Veg	60	LWP + 12'

POOL TR1 * Estimated

DISCHARGE SURVEY 6/26/04

STA	DEPTH	VEL	DOM	SUB	%	COM
26.6	0	0	Veg		100	RWE
27.0	0.7	0.02*	Sand	Veg	60	Instream cover
27.5	1.0	0.29	Sand		100	veg cover
28.5	0.92	0.12	Sand	Veg	70	Instream Cover
30.5	0.82	0.56	sand	Veg	90	
32.5	0.99	0.93	Sand		100	
34.5	1.12	1.03	Sand		100	
36.0	1.38	1.08	Sand		100	
38.0	1.55	1.07	Sand		100	
40.0	1.1	0.99	Sand		100	
42.0	1.18	1.04	Sand		100	
44.0	2.02	0.95	Sand		100	
46.0	1.95	0.72	Sand		100	
48.0	2.05	0.88	Sand	Veg	80	
49.5	1.93	0.94	Sand	Veg	60	
51.5	2.6	0.64/1.07	Sand	Veg	80	
53.0	2.7	0.55/0.7	Sand	Veg	80	
54.5	1.18	0.16	Sand	Veg	60	Ag. Veg
56.5	2.35	0.36	Sand	Veg	80	
58.5	1.88	0.13	Silt	Veg	60	
60.5	1.5	0.02*	Silt	Veg	60	Instream cover
62.5	1.40	0.14	silt	Veg	60	Instream cover
64.5	1.35	0.15	Silt	Veg	70	Instream Cover

STA	DEPTH	VEL	DOM	SUB	%	COM
66.5	1.2	0.03*	Silt	Veg	70	
68.5	0.28	0.01	sand	sm gravel	80	
69.5	0	0	Silt	Veg	90	LWE

POOL TR2

CROSS SECTIONAL PROFILE 6/26/04

STA	BS	HI	FS	ELV	ROD	DOM	SUB	%	COMMENTS
-11.0*		106.12	6.86	99.26		Veg	Sand	60	RWP-12 *Est
1.0			7.62	98.5		Veg	Sand	60	RWP
4.5			8.00	98.12		Veg	Sand	60	
11.0			8.88	97.24		Veg	Sand	60	
17.5			8.82	97.3		Veg	Sand	90	
24.0			8.71	97.41		Veg	Sand	90	
27.2			9.26	96.86		Veg	Sand	90	
29.5			9.44	96.68		Veg	Sand	90	
31.4			9.74	96.38		Veg	Sand	90	
31.8			10.07	96.05		Veg	Sand	90	RWE
			10.09	96.03					RWSE
			10.08	96.04					LWSE
73.5			10.07	96.05		Silt	Veg	80	~~RWE~~ LWE
74.4			9.94	96.18		Silt	Veg	80	
76.6			9.07	97.05		Silt	Veg	90	
78.5			7.23	98.89		Sand	Veg	90	
81.3			5.70	100.42		Sand	Veg	30	
87.7			5.39	100.73		Veg	Sand	30	LWP
99.7			4.85	101.27		Sand	Veg	60	LWP+12' *Est

POOL TR-2 *ESTIMATED

DISCHARGE SURVEY

STA	DEPTH	VEL	DOM	SUB	%	COM
31.6	0	0	Veg	Sand	90	RWE
32.5	1.02	0.05*	sand	Veg	80	Instream cover
34.0	1.22	0.53	Sand	Veg	90	
36.0	0.70	0.05*	Sand	Veg	90	LWD ~4" at 36.5
37.1	0.73	0.66	sand	Veg	90	
38.5	1.12	0.82	sand		100	
40.5	1.45	0.92	sand		100	
42.5	1.63	1.0	sand		100	
44.5	1.75	0.9	Sand		100	
46.5	2.57	0.74/0.99	sand	sm gravel	90	
48.0	2.88	0.48/1.03	Sand	sm gravel	70	
49.5	2.88	0.04/0.94	sand	sm gravel	70	
50.7	2.5	0.04/0.89	sand	sm gravel	90	
52.0	2.75	0.22/0.99	sand	sm gravel	70	
54.0	2.88	0.8/1.13	Sand	sm. gravel	70	
56.0	2.65	0.56/1.14	sand	sm. gravel	90	
58.0	2.48	0.84	Sand		100	
59.0	2.3	0.63	Sand	sm. gravel	90	
61.0	1.65	0.27	Silt	Veg	70	
63.0	1.5	0.14	silt	Veg	70	
65.0	1.35	0.05*	silt	Veg	70	
67.0	1.15	0.05*	Silt	Veg	70	
69.	0.7	0.03*	silt	Veg	70	instream cover

log from 69.8' to 70.8'

STA	DEPTH	VEL	DOM	SUB	%	COM
~~70~~ 71.0	0.5	0.01*	Silt	Veg	60	Instream cover
72.5	0.22	0	Silt	Veg	70	Instream cover
73.5	0	0				LWE
87.7						LWP

POOL TR 3

CROSS SECTIONAL PROFILE 6/26/04

STA	BS	HI	FS	ELV	ROD	DOM	SUB	%	COMMENTS
-26		106.12	6.63	99.49		Veg	sand	80	RWP = 27
1.0			7.70	98.42		Veg	Sand	80	RWP
4.7			8.30	97.82		Veg	Sand	90	
14.0			8.14	97.98		Veg	Sand	90	
16.0			8.45	97.67		Veg	Sand	90	
22.0			8.61	97.51		Veg	Sand	90	
28.0			9.15	96.97		Veg	Sand	90	
31.0			9.44	96.68		Veg	~~Sand~~	100	
35.0			9.58	96.54		Veg		100	
36.6			9.86	96.26		Veg	sand	~~100~~ 90	
36.8			10.07	96.05		Veg	~~silt~~ Sand	90	RWE
			10.08	96.04					RWSE
			10.07	96.05					LWSE
77.7			10.07	96.05		Silt	Veg	90	LWE
79.1			9.50	96.62		Silt	Veg	80	
81.3			8.14	97.98		Veg	Sand	80	
83.8			6.06	100.06		~~Veg~~ Veg	Sand	70	
85.5			5.57	100.55		Veg	Sand	70	
86.7			5.85	100.27		Veg	Sand	70	~~LWP~~
89.4			5.65	100.47		Veg	Sand	80	LWP
106.4*			5.26	100.86		Veg	Sand	80	LWP+17' *EST

POOL TR 3 *ESTIMATED

DISCHARGE SURVEY

STA	DEPTH	VEL	DOM	SUB	%	COM
36.8	0	0	Veg	Sand	90	RWE
37.5	0.55	0.02*	~~Silt~~	Veg	70	Instream cover
39.5	0.72	0.01*	Silt	Veg	70	Instream cover
40.5	1.22	0.05*	Silt	Veg	80	Instream cover
42.5	1.8	0.56	Sand	Veg	90	No Cover
44.5	2.3	0.66	Sand		100	
45.8	2.25	0.82	Sand		100	
47.7	1.75	0.89	Sand		100	
49.2	2.05	0.75	Sand		100	
51.2	2.17	0.60	Sand		100	
53.2	2.5	~~0.67~~ 0.81/1.04	Sand	sm. gravel	100 90	
55.2	2.92	0.70/1.2	Sand	sm. gravel	90	
57.2	2.68	0.23/1.32	Sand	sm. gravel	90	
59.2	2.4	0.61	Sand	sm gravel	90	
60.7	2.25	0.19	Sand	sm gravel	80	
62.7	1.82	0.70	Sand	sm gravel	80	
64.0	1.72	0.46	Sand	sm gravel	90	behind LWD
66.0	1.37	0.06	silt	sand	60	
67.5	LWD					
68.0	1.3	0.05*	Silt	Sand	70	Instream cover
70.0	1.3	0.03*	Silt	Sand	70	behind woody debris
72.0	1.1	0.32	Sand	Silt	60	behind woody debris
74.0	0.95	0.13	Sand	Silt	60	

6/26/04

STA	DEPTH	VEL	DOM	SUB	%	COM
76.0	1.75	0.05*	Sand	Silt	60	
77.7	0	0	Silt	Veg	90	LWE
89.4						LWP

call depth -0.1 out of water.

GLIDE TR1 *ESTIMATED

CROSS SECTIONAL PROFILE

STA	BS	HI	FS	ELV	ROD
-19.0*		106.12	6.92	99.20	
1.0			7.88	98.24	
6.7			7.79	98.33	
11.0			8.23	97.89	
12.2			8.67	97.45	
12.9			10.03	96.09	
			10.04	96.08	
			10.05	96.07	
53.3			10.03	96.09	
53.5			9.91	96.21	
~~60.0~~ 61.0			9.64	96.48	
69.0			9.40	96.72	
74.8			8.87	97.25	
90.8*			8.61	97.51	
102.8*			7.32	98.8	
109.8*			6.08	100.04	

6/26/04

DOM	SUB	%	COMMENTS
Veg	Sand	80	RWP - 20
Veg	Sand	80	RWP
Veg	Sand	80	
Veg	Sand	80	top of bank
Veg	Sand	80	
Veg	~~Sand~~ Silt	80	RWE
			RWSE
			LWSE
Veg	Silt	70	LWE
Veg	Silt	90	LWD at 62'
Veg	Silt	90	
Veg	Silt	90	
Veg	Silt	90	LWP LWD behind LWP
Veg	Silt	90	LWP+16'
Veg	Sand	70	LWP + 28'
Veg	Sand	70	LWP + 35'

GLIDE TR 1 *ESTIMATED

DISCHARGE SURVEY 6/26/04

STA	DEPTH	VEL	DOM	SUB	%	COM
12.9	0	0	veg	Silt	80	RWE
14.0	0.85	0.28	Sand	Silt	80	Instream cover
16.0	1.23	0.95	~~gravel~~ Sand	sm. Gravel	80	
18.0	1.25	0.83	Sand	sm. gravel	80	
20.0	1.4	0.38	Sand	sm. Gravel	80	
22.0	1.52	0.03*	Sand	Silt	60	
24.0	1.72	0.1*	Sand	Sm gravel	90	
26.0	2.1	0.95	Sand	sm. gravel	80	
28.0	2.1	1.18	sand	Sm. gravel	70	
30.0	2.18	1.65	Sand	Sm gravel	70	
31.5	1.55	1.40	Sand	Veg	90	
33.2	1.67	1.15	Sand	veg	90	
35.3	2.05	1.20	Sand	sm. Gravel	90	
36.4	1.9	0.99	Sand	veg	70	
37.4	2.35	1.05	Sand	sm. Gravel	90	
38.8	LWD (Not out of order)					
38.5	2.17	0.74	Sand	sm. gravel	90	
40.0	2.25	0.28	Sand	Sm. gravel	90	
42.0	1.55	0.29	Sand	Silt	70	
44.0	1.67	0.05*	Silt	Veg	70	
46.0	1.3	0.02*	Silt	Veg	70	
48.0	0.72	0	Silt	Veg	70	
50.0	0.63	0	Silt	Veg	70	

STA	DEPTH	VEL	DOM	SUB	%	COM
50.6	0.2	0	Veg	Silt	70	Wet edge
51.3	0.2	0	Veg	Silt	70	Wet edge
52.1	0.3	0	Veg	Silt	70	
~~52.3~~ 52.8	0.3	0	Veg	Silt	70	~~RWE~~
53.3			Veg	Silt	70	LWE ~~LWP~~
51.5	0.6	0	Silt	Veg	70	
53.1	0.1	0	Veg	Silt	70	
74.8						LWP

GLIDE TR 2 *ESTIMATED

CROSS SECTIONAL PROFILE

6/24/04

STA	BS	HI	FS	ELV	ROD	DOM	SUB	%	COMMENTS
-9.0		106.12	5.97	100.15		Veg	Sand	70	RWP -10'
1.0			6.78	99.34		Veg	Sand	70	RWP
2.8			7.17	98.95		Veg	Sand	60	
5.0			8.08	98.04		Veg	Sand	60	
6.1			9.04	97.08		Veg	Sand	80	
6.3			10.00	96.12		Silt	Veg	70	RWE edge
			10.01	96.11					RWSE ele
			10.02	96.10					LWSE ele
~~48.5~~	48.4		10.01	96.11		Silt	Veg	70	LWE edge
48.6			9.85	96.27		Silt	Veg	70	
53.0			9.69	96.43		Veg	Silt	90	
59.0			9.19	96.93		Veg	Silt	90	
~~65.4~~	65.2		9.34	96.78		Veg	Silt	90	LWP
125.2*			7.47	98.65		Veg	Sand	80	LWP + 60'
137.2*			6.02	100.1		Veg	Sand	80	LWP + 72'

GLIDE TR 2 *ESTIMATED

DISCHARGE SURVEY 6/26/04

STA	DEPTH	VEL	DOM	SUB	%	COM
1.0						RWP
6.3	0	0	silt	veg	70	RWE
8.0	~~0.49~~ 0.38	0.05*	silt	veg	80	instream cover
10.0	0.82	0.36	silt	sand	60	No cover
12.0	0.98	0.06	sand	silt	70	
14.0	1.2	0.52	sand	sm. gravel	90	
16.0	1.22	0.60	sand	sm. gravel	90	
18.0	1.38	0.16	sand	sm. gravel	90	
20.0	1.35	0.53	sand	sm. gravel	90	
22.0	1.18	0.23	sand	silt	80	
24.0	1.10	0.36	sand	[illegible]	100	Aq veg
26.0	1.2	0.24	sand		100	Aq veg
28.0	1.35	0.17	sand	sm. gravel	90	
30.0	1.6	0.67	sand	veg	80	
31.5	2.0	0.79	sand	sm. gravel	90	
33.5	2.2	1.08	sand	sm. gravel	90	
35.5	2.2	1.17	sand	sm. gravel	90	
37.5	1.87	1.19	sand	sm. gravel	90	
39.0	1.77	1.26	sand	sm. gravel	90	
40.1	1.07	1.57	sand	veg	90	
42.1	2.07	0.34	sand	sm. gravel	90	
44.1	2.22	1.02	sand	sm. gravel	90	
46.1	1.95	0.89	sand		100	

6/26/04

STA	DEPTH	VEL	DOM	SUB	%	COM
47.1	2.02	0.05*	sand		100	overhanging grass
47.5						
48.0	1.05	0	silt	veg	70	
48.4	0	0	silt	veg	70	LWE
65.2						LWP

GLIDE TR3 * ESTIMATED

CROSS SECTIONAL PROFILE

6/26/04

STA	BS	HI	FS	ELV	RSD	DOM	SUB	%	COMMENTS
-23 *		106.12	5.14	100.98		Sand	Veg	90	RWP - 24'
-11			5.40	100.72		Sand	Veg	90	RWP ~~AWW~~ -12'
1.0			7.16	98.96		Sand	Veg	60	RWP
6.2			8.13	97.99		Sand	Veg	60	
8.5			8.78	97.34		Veg	Sand	80	
10.1			9.40	96.72		Veg	Silt	80	
10.4			9.95	96.17		Veg	Silt	80	RWE edge
			9.99	96.13					RWSE
			9.99	96.13					LWSE
~~64~~ 54.0			9.97	96.15		Veg	Silt	60	LWE edge
54.2			9.85	96.27		Veg	Silt	60	
58.0			9.62	96.5		Veg	Silt	90	
61.5			9.79	96.33		Veg	Silt	90	
65.0			9.12	97.0		Veg	Silt	90	
69.2			8.45	97.67		Veg	Sand	80	
72.0			8.01	98.11		Veg	Sand	80	
75.2			7.80	98.32		Veg	Sand	80	LWP
99.2*			7.83	98.29		Veg	Sand	80	LWP + 24'
125.2			6.70	99.42		Veg	Sand	80	LWP + ~~50~~ 50'

GLIDE TR3 * ESTIMATED

DISCHARGE SURVEY 6/26/04

STA	DEPTH	VEL	DOM	SUB	%	COM
1.0						RWP
10.4	0	0	Veg	Silt	80	RWE
12.0	0.4	0.02*	Silt	Veg	70	Instream Cover
14.0	0.6	0.03*	Silt	Veg	70	Instream Cover
16.0	0.65	0.05*	Silt	Veg	70	Instream Cover
18.0	1.25	0.03*	Silt	Veg	70	Instream Cover
20.0	1.7	0.52	Sand	Silt	80	
22.0	1.88	0.48	Sand		100	
24.0	2.0	1.04	sand	sm. gravel	90	
26.0	2.08	0.97	sand	sm. gravel	90	
28.0	2.05	0.90	sand	sm. gravel	90	
30.0	2.0	1.02	bedrock	sand	90	
32.0	2.07	1.07	bedrock	Sand	90	
34.0	1.95	1.08	bedrock	sand	90	
36.0	1.88	0.98	sand		100	
38.0	1.75	0.89	sand		100	
40.0	1.37	0.53	sand	Veg	90	
43.0	1.17	0.57	Sand		100	
45.0	1.35	0.77	Sand		100	
47.0	1.45	0.59	sand	sm. gravel	90	
49.0	1.0	0.03*	Silt	Veg	70	Instream Cover
51.0	0.78	0.03*	Silt	Veg	70	Instream Cover
~~52.8~~	0.52	0	Silt	Veg	70	log at 53.2'
54.0	0	0	Veg	Silt	60	LWE
752						LWP

WM-8

"Keuffel & Esser Co."

ALL-WEATHER

LEVEL BOOK

No. 310 F

8/20/04

1418.01

WM-8 Low Flow 8/20/04

	In	Out
Time	9:30	11:15
S.G	1.0	1.0

Crew: M. Gagner
B. Nelson

Equipment: Marsh McBirney SN: 2005068
Zeiss III/M

Photo Log:

pool

#1	looking d/s from below HC
#2	" Lt→Rt across HC
#3	" Lt→Rt " TR-1
#4	" " " TR-2
#5	" d/s above "
#6	" Lt→Rt across TR-3
#7	" d/s from above TR-3
#8	
9	
10	
11	
12	

WM-8 Pool/Glide Level Loop 8/20/04

STA	BS	HI	FS	Elevn
BM-1	5.91			100.00
		105.91		
TR-1 pool			7.13	98.78 ✓
TR-2 pool			6.95	98.96 ✓
TR-3 pool			7.05	98.86
TP				
TR-3 pool	7.28			98.86
		106.14		
TR-2 pool			7.18	98.96 ✓
TR-1 pool			7.36	98.78 ✓
BM			6.14	100.00
TP				
BM	6.13			100.00
		106.13		
TR-8 glide			7.52	98.61 ✓
				~~98.61~~
TR-2 glide			6.41	99.72 ✓
TR-3 glide			~~6.36~~	~~99.77~~
			6.37	99.76 ✓
BM-2			5.63	100.50 ✓

WM-8 | Level Loop Contd. 8/20/04

STA	BS	HI	FS	Elevs

WM-8 WSE 8/20/04

STA	BS	HI	FS	Elevs
		106.13		
HC				
Lt			10.19	95.94
Rt			10.15	
TR-1				
Pool Lt			10.18	95.95
Rt			10.15	
TR-2				
Pool Lt			10.17	
Rt			10.17	95.96
TR-3				
Pool Lt			10.15	
Rt			10.~~17~~16	95.97
		106.13		
TR-1				
Glide Lt			10.12	96.01
Rt			10.13	96.00

WM-8 WSE 8/20/04

STA	BS	HI	FS	Elevation
		106.13		
TR-2				
glide Lt			10.09	96.04
Rt			10.08	96.05
TR-3				
glide Lt			10.05	96.08
Rt			10.05	96.08
BM-1			6.13	100.00

* HC out of order

STA	Depth
43.5	1.73
46.5	1.08

WM-8 Pool Hydr. Control 8/20/04

STA	Depth	
26.4	0.0	RWE
28.5	1.62	
30.5	1.90	
32.5	1.41	
34.5	1.55	
36.5	1.45	
38.5	1.61	
40.5	1.80	
41.6	2.00	
43	1.83	
44.5	1.34	
50.0	2.08	
51.5	2.12	
53.5	2.20	
55.0	2.40	
56.5	2.16	
58.5	2.00	
60.5	1.65	
62.5	1.25	
64.5	.87	
66.5	.53	
68.5	.22	
69.9	0.0	LWE

WM-8 Pool TR-1 D&V 8/20/04

STA	Depth	Vel	Notes
26.6	0.0	0.0	RWE
27	.89	.03	
27.5	.94	.15	aq veg
28.5	.87	.01	aq veg
30.5	.95	.38	
32.5	1.31	.73	
34.5	1.38	.92	
36.5	1.55	.92	
38	1.69	.99	
40	1.81	.87	
42	1.97	1.0	
44	2.00	.99	
46	1.92	.71	
48.0	2.02	.68	
49.5	2.14	.89	
51.5	2.70	~~.79~~ .61	
53.0	2.45	.21	aq veg (1.0 deep)
54.5	2.20	.43	aq veg "
56.5	2.32	.28	aq veg (1.0 deep)
58.5	1.83	.01	aq veg "
60.5	1.45	.06	aq veg
62.5	1.40	0.06	aq veg
64.5	1.50	-.01	aq veg

Pool TR-1 Cont. 8/20/04

STA	Depth	Vel	Notes
66.5	0.70	.01	Aq veg
68.5	0.20	0.0	"
69.05	0.0	0.0	LWE

WM-8 Pool TR-2 8/20/04

STA	Depth	Vel	Notes
31.6	0.0	0.0	RWE: aq. veg
32.5	1.0	.16	"
34	1.22	-.01	" (.60 deep)
36	0.63	-.01	
37.1	0.78	.49	
38.5	1.34	.72	
40.5	1.60	.84	
42.5	1.75	.94	
44.5	1.90	.90	
46.5	2.34	.81	
48	2.71	.96 .91	
49.5	2.70	.82 .53	
50.7	2.38	.42	o/s aq veg (~1.5 deep)
52	2.70	.99 .12	" " "
54	2.82	1.04 .58	
56	2.55	1.0 .59	
58	2.40	.62	
59	2.14	.51	
61	1.54	.31	aq veg (.6 deep)
63	1.72	0.0	" .8 "
65	1.35	0.0	" .7 "
67	1.13	"	" 1.0
69	.78	"	.78

WM-8 Pool TR-2 cont. 8/20/04

STA	Depth	Vel.	Notes
71	.43	0.0	aq veg
72.5	.05	"	"
~~73.5~~ 73.00	0.0	0.0	~~RWE~~ LWE

WM-8 Pool TR-3 8/20/04

STA	Depth	Vel	Notes
36.9	0.0	0.0	RWE sg veg
37.5	.30	0.0	"
39.5	.68	0.0	"
40.5	1.45	-.04	sg veg
42.5	1.60	.19	
44.5	1.94	.71	
45.8	1.85	.83	
47.7	1.74	1.02	
49.2	1.85	.96	
51.2	1.98	.86	
53.2	2.38	1.01	
55.2	2.80	1.05 / .65	
57.2	2.58	1.12 / .55	
59.2	2.34	.70	
60.7	2.20	.78	
62.7	1.80	.89	
64	1.67	.52	
66	1.38	.35	
67.5	1.38	.11	LWD corner
68	1.30	.02	
70	1.30	-.03	
72	1.09	.32	
74	.93	.09	

WM-8 Pool TR-3 8/20/04

STA	Depth	Vel	Notes
76	.35	0.0	sg veg / LWD
77.4	0.0	0.0	LWE

WM-8 Glide ~~Run~~ TR-1 8/20/04

STA	Depth	Vel	Notes
12.8	0.0	0.0	RWE
14	0.8	.21	4 veg
16	1.20	.69	vel taken @ above vegetation near the water surface.
18	1.20	.88	
20	1.37	.23	u/s veg
22	1.50	.45 .06	" " (1.0' deep)
24	2.10	.50 .03	" " (.8 ")
26	2.10	.79	
28	2.10	1.23	
30	2.20	1.50	
31.5	1.56	1.18	
33.2	1.70	1.20	vel taken @ 0.6 of depth
35.3	1.62	1.44	
36.4	1.74	1.37	
37.4	2.30	1.07	
38.8	2.22	.54	LWD
40.0	2.20	.67	
42	1.40	.10	
44	1.03	0.05 0.0	ag veg (.8' deep)
46	0.92	0.01	VEG DEP: 0.6
48	0.90	0.0	
50	0.40	0.0	
50.6	0.05	0.0	

Glide TR-1 Cont. 8/20/04

STA	Depth	Vel	Notes
51.3	0.05	0.0	
51.5	0.02	0.0	
52.1	0.05	0.0	
52.8	0.0	0.0	LWE
53.1			

wm-8 Glide TR-2 8/20/09

STA	Depth	Vel	Notes
6.7	0.0	0.0	BWE
8	0.35	0.0	
10	0.80	0.08	AQ VEG.
12	1.0	0.09	AQ VEG.
14	1.15	0.55	
16	1.18	0.52	
18	1.36	0.36	
20	1.27	0.48 / 0.55	
22	1.10	0.0	VEG: 0.6
24	1.05	1.73 / 0.70 / 0.04	VEG DEP: 0.7
26	1.15	0.0	VEG DEP: 0.80
28	1.30	0.73 / 0.04	VEG DEP: 1.0
30	1.55	0.51	
31.5	1.80	0.81	
33.5	2.15	1.08	
35.5	2.20	1.30	
37.5	1.97	1.36	
39	1.45	1.53 / 1.61	
40.1*	1.55	0.0	VEG Depth: 0.7
42.1	2.12	1.36	
44.7	2.22	0.73	
46.1	2.00	0.87	
47.1	1.95	-0.02	
* 41.0	1.95	1.42 / -0.05	AA VEG: 1.10

8/20/09

Glide TR-2 cont.

STA	Depth	Vel	Notes
48.3	0.30	0.0	
48.5	0.0	0.0	LWE

GLIDE TR-3

STATION	Best Q DEP	VEL
1.0		
10.4	0.0	0.0
12.0	0.40	0.0
14.0	0.60	0.0
16.0	0.60	0.0
18.0	1.15	0.05
20.0	1.65	0.42
22.0	1.78	0.65
24.0	1.90	0.92
26.0	1.95	1.22
28.0	1.90	1.10
30.0	1.90	1.18
32.0	2.05	1.21
34.0	1.90	1.12
36.0	1.86	1.06
38.0	1.75	1.10
40.0	1.35	0.50
43.0	1.17	0.53
45.0	1.30	0.72
47.0	1.45	0.45
49.0	1.20	0.05
51.0	0.85	0.0

wm-8
NOTES

RWE
AQ VEG
" "
" "
" "

AQ. VEG.
" "

STA	TR-3 Depth	Glide Vel	wm-8 Notes
52.7	0.35	0.0	" "
54.0	0.10	0.0	" "
54.2	0.0	0.0	LWE